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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/966,953	09/27/2001	Kevin Collins	10006728-1	4853
7590	09/08/2004		EXAMINER	
HEWLETT-PACKARD COMPANY			LE, DIEU MINH T	
Intellectual Property Administration			ART UNIT	PAPER NUMBER
P.O. Box 272400			2114	
Fort Collins, CO 80527-2400			DATE MAILED: 09/08/2004	

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	09/966,953	COLLINS ET AL.
	<b>Examiner</b>	<b>Art Unit</b>
	Dieu-Minh Le	2114

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on 27 September 2001.

2a)  This action is **FINAL**.                            2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## **Disposition of Claims**

4)  Claim(s) 1-29 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5)  Claim(s) \_\_\_\_\_ is/are allowed.

6)  Claim(s) 1-29 is/are rejected.

7)  Claim(s) \_\_\_\_\_ is/are objected to.

8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All b)  Some \* c)  None of:  
1.  Certified copies of the priority documents have been received.  
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)  Notice of References Cited (PTO-892)  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3)  Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 9/27/01.

4)  Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.  
5)  Notice of Informal Patent Application (PTO-152)  
6)  Other: \_\_\_\_.

**DETAILED ACTION**

1. This Office Action is response to the communication filed on 09/27/01 in application 09/966,953.

**Claim Rejections - 35 USC § 103**

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-29 are rejected under 35 U.S.C. § 103(a) as being unpatentable Parris (US Patent 6,408,406) in view of James Li (US Patent 6,401,214).

As per claim 1:

Parris substantially teaches the invention. Parris teaches:

- A method for monitoring performance of a storage device [fig. 4, abstract, col.2, lines 21-29 and col. 8, lines 18-33];

comprising:

- intercepting communications between a computer system and storage device [fig. 1, col. 1, lines 12-19 and col. 4, lines 43-53];
- analyzing intercepted communications relative to a threshold value for the performance of storage device [col. 2, lines 10-13, col. 2, lines 37-46, col. 6, lines 15-17 and col. 10, lines 3-7].

Parris does not explicitly teach:

- responding to a decline in the performance of storage device based on analyzed intercepted communications.

However, Parris does disclose capability of:

- performance threshold exceed certain level then the disk drive marked as failed disk drive [col. 2, lines 54-57].

In addition, Li explicitly teaches:

- A method for minimizing errors caused by impaired (i.e., decline) performance of a hard disk drive [abstract, col. 9, lines 34-40]; comprising:

- monitoring performance of hard disk drive operation [col. 9, lines 41-42];

- responding to degrade (i.e., decline) of disk drive performance with preventive recovery operation modes [col. 9, lines 43-49].

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of Applicant's invention to apply the responding to degrade (i.e., decline) of disk drive performance with preventive recovery operation modes as taught by Li in conjunction with the method for testing defective disk drive storing performance parameters for continuously logging problem during the operation of the disk drive as disclosed by Parris in order to enhance the storage device, memory programming efficiency (i.e., erasing, programming, accessing, processing, etc...). One of ordinary skill in the art would have been motivated to do so to improve the memory response time (i.e., data access to and from memory devices and computer devices), memory space allocation, memory process controlling,

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etc.... It would further obvious because by improving storage device or disk drive performance, the disk drive can be ensured of free of errors or failure in supporting its operation.

As per claims 2-4:

Parris further teaches:

- measuring access time for storage device [col. 2, lines 58-65, col. 6, lines 43-47, and col. 7, lines 52-62].
- correcting measured access time for system overhead [col. 8, lines 34-59].
- intercepting an error reported by storage device [col. 8, lines 4-15].

As per claims 5-6:

Parris further teaches:

- determining an access location [col. 3, lines 1-6] on storage device and an access frequency for data stored thereon, based on intercepted communications [col. 3, lines 7-12].
- determining an access location on storage device and an access duration for data stored thereon, based on intercepted communications [col. 3, lines 7-12].

As per claims 7-8:

Parris further teaches:

- logging communication over time [col. 4, lines 50-52, col. 7, line 7-11];
- deriving threshold value based on logged communications [fig. 5, col. 4, lines 50-52, col. 7, line 7-11].

As per claims 9-12:

Parris further teaches:

- responding to declining performance of storage device comprise:
  - automatically backing up data stored on storage device [fig. 3 col.5 , lines 26-52];
  - defragmenting at least a portion of storage device [col. 5, line 39 through col. 6, line 14];
- reallocating at least some data on storage device [fig. 3, col. 5 , lines 26-52];
  - based on usage patterns of data [fig. 3 and 5, col. 1, lines 25-30].

As per claims 13-23:

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These claims are the same as per claims 1-12. The only minor different is that this claim is directed to an apparatus for monitoring performance of a storage device comprising **computer-readable program media** instead of a method for monitoring performance of a storage device as described in claims 1-12. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to realize that a **computer-readable program media** is a necessary item for such the storage device. Since the storage device obviously needs a means for instruction or code means resided within the computer program media for performing the data access, data access duration, data logging, data analysis, etc... Therefore, these claims are also rejected under the same rationale applied against claims 1-12.

As per claims 24-27:

Due to the similarity of claims 24-27 to claims 1-12 except for an apparatus for monitoring of a storage device comprising evaluating means, responding means, intercepting means, etc... instead of a method for monitoring of a storage device comprising analyzing, responding, intercepting capabilities, etc...therefore, these claims are also rejected under the same

rationale applied against claims 1-12. In addition, all of the limitations have been noted in the rejection as per claims 1-12.

As per claims 28-29:

These claims are the same as per claims 1, 5-6, and 10. The only minor different is that claim 28 includes limitation of reallocating at least some of data on the storage device to enhance the performance of the storage device. However, Parris teaches:

- responding to declining performance of storage device comprise:
  - automatically backing up data stored on storage device [fig. 3 col.5 , lines 26-52];
  - defragmenting at least a portion of storage device [col. 5, line 39 through col. 6, line 14];
- reallocating at least some data on storage device [fig. 3, col. 5 , lines 26-52];
  - based on usage patterns of data [fig. 3 and 5, col. 1, lines 25-30].

Therefore, these claims are also rejected under the same rationale applied against claims 1, 5-6, and 10.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
5. A shortened statutory period for response to this action is set to expire THREE (3) months, ZERO days from the date of this letter. Failure to respond within the period for response will cause the application to be abandoned. 35 U.S.C. 133.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dieu-Minh Le whose telephone number is (703)305-9408 [NOTE: **After approximately October 15, 2004, I can be reached at the new number (571) 272-3660].** The examiner can normally be reached on Monday - Thursday from 8:30 AM to 6:30 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Beausoliel can be reached on (703)305-9713. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
**DIEU-MINH THAI LE  
PRIMARY EXAMINER  
ART UNIT 2114**

DML  
9/02/04